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IS 4188 (1996): Household sewing machines - Oscillating shafts [MED 29: Sewing Machines]



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“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

घरेलू सिलाई मशीन दोलायमान शाफ्ट — विशिष्ट

(पहला पुनरीक्षण)

Indian Standard

HOUSEHOLD SEWING MACHINES —
OSCILLATING SHAFT — SPECIFICATION

(*First Revision*)

ICS 61.080

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BUREAU OF INDIAN STANDARDS
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FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards after the draft finalized by the Sewing Machines Sectional Committee had been approved by the Light Mechanical Engineering Division Council.

This standard was originally published in 1967. This first revision has been undertaken to incorporate material details, rationalize the sizes due to revision of IS 1610 and make the standard more user and manufacturer friendly. Additional details about surface roughness have also been incorporated.

For general requirements of sewing machine IS 1610 : 1989 'Household sewing machines — General requirement (*second revision*)' may be referred. A list of Indian Standards on sewing machines and the components is also given in Annex B.

In the preparation of the original version of this standard, assistance had been derived from JIS B 9026 : 1963 Oscillating shaft of sewing machine for home use, issued by Japanese Standards Association. The Japanese standard has remained unchanged after publication in 1963.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian standard

HOUSEHOLD SEWING MACHINES — OSCILLATING SHAFTS — SPECIFICATION

(*First Revision*)

1 SCOPE

This Indian Standard (First Revision) specifies the requirements for two types of oscillating shafts for sewing machines for household purposes.

2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	Title
2102 (Part 1) : 1993	General tolerances: Part 1 Tolerances for linear and angular dimensions without individual tolerance indications (<i>third revision</i>)
2500 (Part 1) : 1992	Sampling inspection procedure: Part 1 Attributes sampling plan indexed by acceptance quality level (AQL) for lot by lot inspection (<i>second revision</i>)
4432 : 1988	Specification for case hardening steels (<i>first revision</i>)
4905 : 1968	Methods for random sampling

3 TYPES

The oscillating shaft shall be either Type A or Type B (*see* Fig. in Table 1 and Table 2)

4 MATERIAL

The oscillating shafts shall be manufactured from a suitable carbon steel, such as 15C8 of IS 4432 : 1988.

5 HARDNESS

The bearing surfaces shall be heat treated to achieve a hardness value between 400 and 450 HV.

6 DIMENSIONS

The main dimensions for oscillating shafts shall be as given in Table 1 and Table 2.

7 TOLERANCES

7.1 The radial run-out of oscillating shaft centre at points 35 mm from ends shall not exceed 0.01 mm.

7.2 The error in straightness of the oscillating shafts shall be within 0.08 mm

7.3 The error in ovality of the bearing diameters of the oscillating shafts shall be within 0.005 mm.

7.4 Tolerances on untoleranced dimensions shall conform to fine grade of IS 2102 (Part 1) : 1993.

Table 1 Dimensions for Oscillating Shafts, Type A
(*Clause 6*)

All dimensions in millimetres.

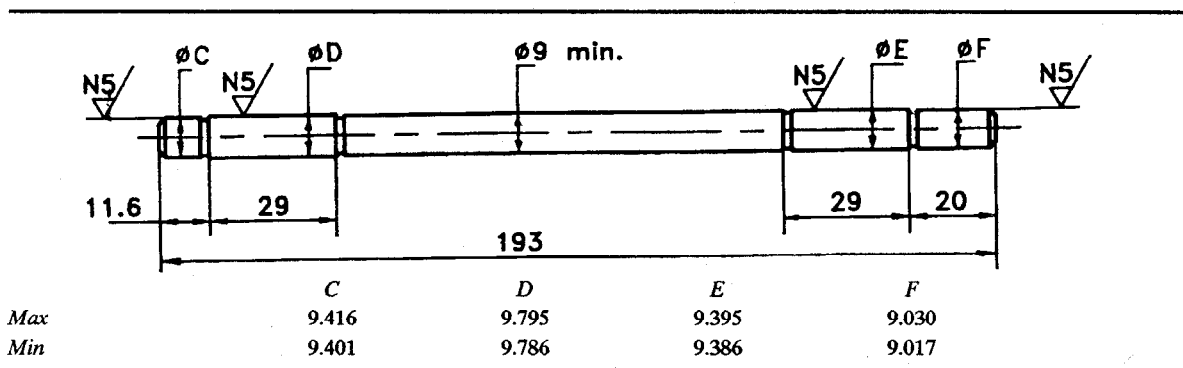
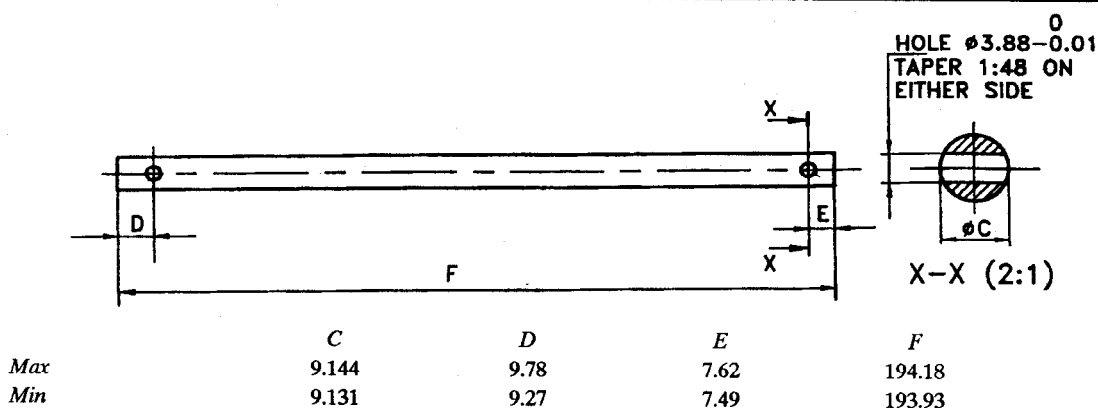


Table 2 Dimensions for Oscillating Shafts, Type B
(Clause 6)

All dimensions in millimetres.



8 WORKMANSHIP AND FINISH

8.1 The oscillating shafts shall be well finished and shall be free from defects, such as cracks, flaw, burrs and rust.

8.2 The bearing portion of the oscillating shaft shall be precision ground to a minimum surface finish value of $Ra\ 0.4\ \mu m$.

9 DESIGNATION

The oscillating shafts shall be designated by the part name, that is 'Oscillating Shaft'; Type and number of this Indian Standard. An oscillating shaft of Type B shall be designated as:

Oscillating Shaft B IS 4188

10 SAMPLING

Unless otherwise agreed upon between the supplier and the purchaser, the sampling plan as given in Annex A shall be followed. For further information reference may be made to IS 2500 (Part 1) : 1992.

11 MARKING

11.1 Each piece of the oscillating shaft shall be legibly and indelibly marked with the following:

- Source of manufacture and trade-mark, if any; and
- Type of oscillating shaft.

11.2 BIS Certification Marking

The product may also be marked with the Standard Mark

11.2.1 The use of the Standard Mark is governed by the provision of *Bureau of Indian Standards Act, 1986* and the Rules and Regulations made there under. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

12 PACKING

Each oscillating shaft shall be given a suitable antirust coating and wrapped in polythene paper or bags. The wrapped oscillating shaft shall be securely packed in accordance with the best prevalent trade practice. Each package shall bear the following:

- Name of the manufacturer and trade mark; if any
- Type; and
- Designation.

ANNEX A

(Clause 10)

SCALE OF SAMPLING AND CRITERIA FOR CONFORMITY

A-1 SCALE OF SAMPLING

A-1.1 Lot

In any consignment, all the oscillating shafts of the same type and manufactured from the same material under essentially similar conditions of manufacture shall be grouped together to constitute a lot.

A-1.2 For ascertaining the conformity of the lot to the requirements of the specification, tests shall be carried out for each lot separately. The number of oscillating shafts to be selected at random for this purpose shall be in accordance with col 1 and 2 of Table 3.

A-1.3 If the oscillating shafts are packed individually, IS 4905 : 1968 shall be used in order to ensure the randomness of selection.

A-1.4 If the oscillating shafts are packed in different cartons, a suitable number of cartons (not less than 20 percent of the total in the lot subject to a minimum of 2) shall be chosen at random. From each of the cartons so chosen, an approximately equal number of oscillating shafts shall be picked up from its different parts so as to obtain the required number of oscillating shafts specified in col 2 of Table 3.

A-2 NUMBER OF TESTS AND CRITERIA FOR CONFORMITY

A-2.1 The oscillating shafts selected according to A-1.2 and A-1.3 or A-1.4 shall be examined for dimensions (*see* 6), tolerances (*see* 7) and workmanship and finish (*see* 8). If the number of oscillating shafts failing to meet one or more of the requirements mentioned above is less than or equal to the permissible number of defectives given in col 3 of Table 3, the lot shall be declared as conforming to the requirements of these characteristics.

A-2.2 In case of those lots which have been found satisfactory according to A-2.1, a number of oscillating shafts equal to the sample size indicated in col 4 of Table 3, shall be subjected to hardness test (*see* 5). Any oscillating shaft failing to meet the requirement for hardness shall be considered to be defective.

A-2.2.1 If no defectives are found among the oscillating shafts subjected to the hardness test (*see* A-2.2), the lot shall be declared as conforming to the requirements of the specification, otherwise not.

Table 3 Scale of Sampling and Permissible Number of Defectives
(Clauses A-1.2, A-1.4, A-2.1 and A-2.2)

No. of Oscillating Shafts in the Lot	For Dimensions, Tolerances and Workmanship and Finish		Sample size for Hardness
	Sample Size	Permissible No. of Defectives ¹⁾	
<i>N</i>	<i>n</i>		
(1)	(2)	(3)	(4)
Up to 15	5	0	2
16 to 40	8	0	3
41 to 110	13	0	3
111 to 300	20	1	5
301 to 500	32	1	6
501 to 800	50	2	8
801 to 1 300	80	3	10
1 301 and above	125	5	15

¹⁾This ensures that lots containing only one and a half percent or less defectives will be accepted most of the time.

ANNEX B

(Foreword)

LIST OF INDIAN STANDARDS ON SEWING MACHINES

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
1294 : 1989	Bobbins for sewing machines for household purposes (<i>third revision</i>)	4342 : 1967	Square slider for oscillating rock shaft for sewing machines for household purposes
1295 : 1990	Household sewing machines — Needle bar — Specification (<i>second revision</i>)	4632 : 1968	Square slider for stitch regulator shaft for sewing machines for household purposes
1297 : 1991	Household sewing machines — Presser bar — Specification (<i>third revision</i>)	4735 : 1968	Arm shaft cams for sewing machines for household purposes
1610 : 1989	Household sewing machines — General requirements (<i>second revision</i>)	5740 : 1996	Household sewing machines — Memorandum of screw threads for sewing machine components (<i>first revision</i>)
2181 : 1973	Household sewing machine needles (<i>first revision</i>)	6903 : 1973	Glossary of terms relating to sewing machines for household purposes
3290 : 1994	Household sewing machines — Thread take-up lever sub-assembly for cam type sewing machines — Specification (<i>third revision</i>)	7491 : 1989	Sewing machines, household — Accuracy requirements (<i>first revision</i>)
3291 : 1968	Thread take-up cams for sewing machines for household purposes (<i>first revision</i>)	7492 : 1989	Sewing machines, household — Sewing requirements (<i>first revision</i>)
3299 : 1969	Oscillating rock shafts for sewing machines for household purposes (<i>first revision</i>)	7493 : 1989	Sewing machines, household — Durability requirements (<i>first revision</i>)
3375 : 1991	Household sewing machines — Bobbin case — Specification	8892 : 1978	Bobbins for sewing machines with rotating hooks for industrial use
3816 : 1966	Connecting rods for sewing machines for household purposes	9152 : 1979	Glossary of terms and identification symbols relating to classification of industrial sewing machines
3817 : 1991	Household sewing machines — Arms shaft — Specification (<i>first revision</i>)	9697 : 1980	Bobbin cases for sewing machines with rotating hooks for industrial use
3868 : 1966	Feed lifting rock shaft for sewing machines for household purposes	9874 : 1981	Arm and bed assembly for sewing machines for household purposes
4181 : 1967	Feed fork for sewing machines for household purposes	10040 : 1981	Rotating hooks for sewing machines for industrial use
4188 : 1996	Household Sewing machines — Oscillating shaft — Specification (<i>first revision</i>)	10304 : 1982	Feed rock shaft for sewing machines for household purposes
4338 : 1991	Household sewing machines — Vertical oscillating shuttle — Specification (<i>second revision</i>)	10305 : 1982	Feed rock shaft crank for sewing machine for household purposes
4339 : 1967	Needle bar link studs for sewing machines for household purposes	10306 : 1982	Feed lifting rock shaft crank for sewing machines for household purposes
4340 : 1967	Needle bar link for sewing machines for household purposes	11280 : 1985	Feed bar for sewing machines for household purposes
4341 : 1967	Feed holder roller for sewing machines for household purposes	11345 : 1985	Oscillating shaft crank for sewing machines for household purposes

<i>IS No.</i>	<i>Title</i>	<i>IS No.</i>	<i>Title</i>
11347 : 1995	Household sewing machines — Shuttle driver — Specification (<i>first revision</i>)	13192 : 1991	Household sewing machines — Hand attachment assembly
12058 : 1987	Slide plates for sewing machines for household purposes	13806 : 1993	Household sewing machines — Closed type shuttle race assembly — Specification
12109 : 1987	General requirements for light duty sewing machine heads for industrial use	13825 : 1993	Household sewing machines — Arm shaft front bush — Specification
12740 : 1989	Household sewing machines — Stand — Specification	13872 : 1993	Household sewing machines — Stitch regulator — Specification
12789 : 1989	Household sewing machines — Table and base	13972 : 1994	Household sewing machines — Bobbin winder assembly — Specification
12798 : 1989	Household sewing machines — Fly wheels — Specification	14207 : 1995	Household sewing machines — Open type shuttle race sub-assembly — Specification
13120 : 1991	Household sewing machines — Flywheel bush — Specification		

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